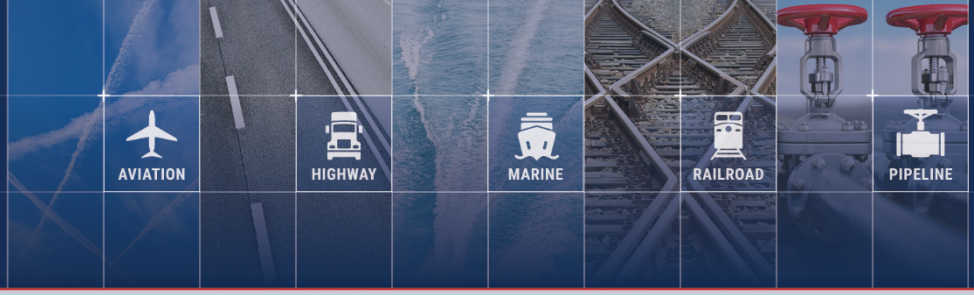

Aviation Investigation Final Report

Location:	Des Moines, Iowa	**Accident Number:**	CHI01FA026
Date & Time:	November 3, 2000, 16:47 Local	**Registration:**	N71134
Aircraft:	Luscombe 8A	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot contacted Des Moines approach control for landing instructions. Approach control told the pilot to fly inbound on the extended centerline for runway 23 until turning on to a left downwind for runway 31L. ATCT then instructed the pilot to turn left on downwind for runway 31L at mid-field. Two minutes later, the pilot contacted the tower and asked if he could land on runway 31R. The tower controller told the pilot to keep the turn tight and asked if the pilot could turn base from where he was. The pilot said that he could. Witnesses on the ground observed the airplane in a constant bank, starting from downwind until rolling wings level on final approach. The airplane's wings were level only for a moment when the airplane sharply rolled into a 90-degree bank angle and impacted the ground. An examination of the airplane revealed no pre-impact anomalies.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot not maintaining aircraft control during the final turn, and the pilot's improper decision to fly the tight pattern to the closer runway. Factors relating to the accident were the pilot's inadequate distance/altitude in the traffic pattern and the stall.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH - VFR PATTERN - BASE TURN

Findings
1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
3. (F) DISTANCE/ALTITUDE - INADEQUATE - PILOT IN COMMAND
4. (F) STALL - ENCOUNTERED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On November 3, 2000, at 1647 central standard time, a Luscombe 8A, N71134, piloted by an airline transport pilot, was destroyed when during an approach to land on runway 31R (9,001 feet by 150 feet, dry asphalt) at the Des Moines International Airport (DSM), Des Moines, Iowa, it departed controlled flight and impacted the terrain. A post crash fire ensued. Visual meteorological conditions prevailed at the time of the accident. The personal flight was being conducted under the provisions of 14 CFR Part 91. No flight plan was on file. The pilot was fatally injured. The local flight originated at Des Moines, Iowa, at an unknown time.

At 1641, N71134 contacted DSM Approach Control. The east controller informed the pilot that the current winds at Des Moines were 280 degrees at 3 knots, to expect runway 31L, and maintain 2,500 feet mean sea level.

At 1642, the east controller told N71134 to turn 15 degrees left. The pilot acknowledged with "turn fifteen degrees left." The controller asked if the pilot had the airport in sight. The pilot responded, "airport in sight." The controller then told the pilot to fly inbound on the extended centerline for runway 23 until turning on to the left downwind for runway 31L.

At 1644, N71134 contacted DSM Air Traffic Control Tower (ATCT). DSM ATCT instructed the pilot to turn left on downwind for runway 31L at mid-field.

At 1646, the pilot asked the tower controller if there was any chance that he could land on runway 31R. The tower controller told the pilot to keep it (the turn) tight, and asked the pilot if he could turn base from where he was. The pilot said that he could.

A witness on the ground said the airplane made a tight turn in toward the runway and immediately turned to final with a very steep bank. The witness said the airplane then turned into a steeper bank, almost 90 degrees. The witness said that at impact the airplane's wings were perpendicular to the ground and the nose was pitched down approximately 20 degrees. The witness said that an Access Air, Boeing 737 had landed on runway 31R just before the accident occurred.

A flight crew in the cockpit of a Saab 340 airplane operated by Chicago Express Airlines witnessed the airplane initiate its final approach to the crash. The captain said that he noticed the airplane directly off the nose of their airplane "flying what appeared to be a tight approach to runway 31R." The captain said he pointed the airplane out to the first officer. "We followed the airplane as it maintained a constant bank, starting from a downwind position until finally rolling wings level on what appeared from our position to be final approach. The wings were

level only for a moment when the airplane sharply rolled into a 90-degree bank angle before impacting the ground." The captain said that from his position he did not see the airplane hit the ground.

The first officer said that the way their airplane is parked at Gate A5 at DSM, the Saab 340 faced the approach end of runway 31R. She said, "An airplane in a close tight right hand pattern for 31R caught our attention. We watched the approach from downwind, base, and final. The airplane was in a continuous steep right hand bank throughout the approach. The airplane rolled out on final, wings level at approximately just over its wing span height from the ground. Two seconds after rolling wings level on final the airplane turned 90 degrees to the right. Its wings were perpendicular with the ground. A second later its right wing hit the ground at that same ninety degree angle, the wing appeared to disintegrate into the ground and the sight became a cloud of dust directly followed by a fire."

PERSONNEL INFORMATION

The pilot was a full-time employee of the Iowa Air National Guard where he served as the Operations Group Commander and F-16 pilot for the 132nd Fighter Wing at DSM. The pilot held an airline transport pilot certificate with a multiengine land airplane rating and commercial privileges for single engine land airplanes, issued August 5, 1997. The pilot also held a second-class medical certificate listing no restrictions, dated September 5, 2000. According to flight and medical records obtained from the Air National Guard, Federal Aviation Administration (FAA), and the pilot's family, the pilot had approximately 3,700 total flying hours and approximately 22 hours in the accident airplane.

AIRCRAFT INFORMATION

The airplane, manufactured in 1946, was owned and operated by the pilot and used for pleasure. According to FAA records, the airplane was registered to the pilot on July 26, 2000. The airplane had recently undergone an annual inspection on October 28, 2000. The total airframe time at the annual was 1,443.2 hours. According to his family, the pilot picked up the airplane on completion of the annual inspection on October 31, 2000.

METEOROLOGICAL INFORMATION

At 1719, the Routine Aviation Weather Report (METAR) for DSM was 25,000 scattered, ceiling of 30,000 broken, 10 statute miles visibility, temperature 48 degrees Fahrenheit (F), dew point 28 degrees F, winds 260 degrees at 7 knots, and an altimeter of 30.25 inches of Mercury.

WRECKAGE AND IMPACT INFORMATION

The Safety Board's on-scene investigation began on November 4, 2000, at 0800.

The accident site was located on the southeast side of the Des Moines International Airport,

approximately 96 feet east of the overrun for runway 31R, on a 095 magnetic heading.

The accident site began with a 38-foot long, 2-foot wide ground scar beginning approximately 202 feet from the overrun of runway 31R. The ground scar was 8 inches at its deepest point, which was 30 feet west of the beginning of the scar. The ground scar ran along a 312-degree magnetic heading from southeast to northwest. Several pieces of green-colored glass, a clear lens cover to a strobe light, and numerous silver-colored paint chips were located at the beginning of the ground scar.

An area of debris extended along and east of the ground scar for approximately 30 feet. The debris consisted of paint chips, wire, pieces of clear Plexiglas, pieces of torn fabric, and a wing rib.

The airplane's right wing tip was located 30 feet from the beginning, and on the west edge of the ground scar. It was broken aft longitudinally. Torn wing fabric adhered to the longitudinally running seam. The leading edge corner of the wing tip was crushed inward. Pieces of grass and dirt were found embedded in the front leading edge corner.

Extending northwestward from the end of the ground scar, a spray of dirt and debris fanned outward in a 45-degree arc for approximately 5 feet. Pieces of clear Plexiglas, paint chips, and pieces of fabric fanned out from the ground scar toward the northeast for approximately 13 feet.

A second ground scar, approximately 4 feet long, 3 inches wide and 3 inches deep, began 8 feet from the end of the first ground scar. The second ground scar ran southeast to northwest along a 312-degree magnetic heading.

The right side cowling door was located 22 feet from the end of the first ground scar on a 315-degree magnetic heading. The door was broken out at the hinges. The secure fasteners remained with the door. Pieces of clear Plexiglas and three wing inspection panels were found in the area of the cowling door.

The airplane's main wreckage was located 107 feet from the beginning of the first ground scar on a 312-degree magnetic heading. The main wreckage consisted of the propeller, engine, top and front parts of the engine cowling, the remains of the left and right wings, the left and right main landing gear, remains of the airplane's cabin, the aft fuselage, the empennage, and the tail wheel. The front part of the main wreckage, including the wings, cabin, engine and propeller, was oriented on a 335-degree magnetic heading. The aft fuselage and empennage rested along a 255-degree magnetic heading.

The airplane's engine was intact, charred, and rested inverted. The engine mounts were bent and twisted clockwise. The front and top parts of the cowling were crushed inward on to the engine. These portions of the cowling were charred and melted. The remaining parts of the cowling and forward fuselage were consumed by fire. The propeller remained mounted to the

flange. It showed torsional bending and chordwise scratches. One propeller blade was bent aft and melted. All but the inboard 15 inches of that blade was consumed by fire.

The firewall was bent forward around the accessory case at the rear of the engine. It was charred and melted. The airplane's instrument panel was broken out, charred, melted, and consumed by fire. Several flight and engine instruments were broken out of the panel. The airplane's cabin area, including the cabin frame, exterior fabric, interior, glareshield, doorframes, and two seats, was broken open, charred, and consumed by fire. The control sticks and rudder pedals remained attached to their respective bellcranks and cables. They were broken out of the cabin floor, and were charred and melted. The airplane's cabin doors were broken off at the hinges, charred and melted. The cabin door windows were broken out, fragmented, melted, and consumed.

The airplane's main landing gear was broken out of the fuselage. Metal skin over the gear legs was charred and melted. The right main gear wheel pant was crushed aft and inward around the tire. The left gear pant and tire were charred and melted.

The airplane's left wing was broken aft at the wing root. The inboard 9 feet of the wing was charred, melted, and consumed by fire. The left fuel tank at the wing root was broken open, charred and melted. The inboard ribs and spars were bent and twisted aft, charred, and melted. The span of the left wing leading edge was crushed rearward beginning 18 inches outboard of the wing root. The outboard wing section was charred, melted, and consumed to the wing tip. The left wing tip was crushed aft, charred, and melted. The left aileron was intact and attached to the aft spar. It showed bends and wrinkles across the surviving span. The inboard 18 inches of the aileron were charred and melted. An additional 20 inches of the trailing edge of the left aileron were charred, melted, and consumed by fire. Flight control continuity to the left aileron was confirmed.

The left wing's aft strut was bent inward approximately 18 inches outboard of the wing attach bolt. The forward strut was bent downward approximately 28 inches outboard of the fuselage attach point. Both struts were charred and melted.

The airplane's right wing was broken aft at the wing root. The wing was bent and twisted upward and aft along its span. The inboard 8 feet of the wing fabric was charred, melted, and consumed by fire. The right fuel tank at the wing root was broken open, charred and melted. The inboard ribs and spars were bent and twisted aft, charred, and melted. The outboard wing section was bent aft, torn, and charred to the wing tip rib. The right aileron was broken out at the hinges and bent aft at mid span. The aileron cables remained attached. Flight control continuity to the right aileron was confirmed.

The right wing's forward and aft struts were bent aft, charred and melted.

The aft fuselage was broken off laterally approximately 69 inches forward of the empennage. The fuselage, at the fracture, was charred and melted. The remaining aft fuselage was twisted

clockwise approximately 15 degrees.

The airplane's empennage was intact and bent to the right. The vertical stabilizer and rudder were bent 10 degrees to the right at the base. The right side bottom skin of the vertical stabilizer was bent and wrinkled. Flight control continuity to the rudder was confirmed. The left horizontal stabilizer, left side of the elevator and elevator trim tab showed no damage. The right horizontal stabilizer was bent upward 38 degrees at the root. The top inboard skin of the right horizontal stabilizer was bent upward and wrinkled at the root. The right side elevator was bent upward 10 degrees approximately 1 foot inboard of the tip. Flight control continuity to the elevator was confirmed. The airplane's tail wheel showed no damage. The tail wheel leg was bent left 5 degrees at the fuselage.

An examination of the airplane's engine, engine controls, and other surviving systems revealed no pre-impact anomalies.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy of the pilot was conducted by the State Medical Examiner's Office, at the Broadlawns Medical Center, Des Moines, Iowa, on November 4, 2000.

The results of FAA toxicology testing of specimens received from the pilot were negative for all tests conducted.

FIRE

The airport fire department responded to the accident site on being notified by DSM ATCT. Videotape obtained from the DSM Department of Aviation showed that fire units were on the scene within 2 minutes following the accident.

The fire was confined to the airplane's main wreckage.

ADDITIONAL INFORMATION

A party to the investigation was the FAA Flight Standards District Office, Des Moines, Iowa.

The airplane wreckage was released and turned over to the Department of Aviation, Des Moines International Airport.

Pilot Information

Certificate:	Airline transport	**Age:**	39,U
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	September 5, 2000
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	3700 hours (Total, all aircraft), 22 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Luscombe	**Registration:**	N71134
Model/Series:	8A 8A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	2561
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	December 28, 2000 Annual	**Certified Max Gross Wt.:**	1260 lbs
Time Since Last Inspection:	0 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1443 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	C-85-12
Registered Owner:	Michael Scot O'Grady	**Rated Power:**	85 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DSM,957 ft msl	**Distance from Accident Site:**	1 Nautical Miles
Observation Time:	15:54 Local	**Direction from Accident Site:**	130°
Lowest Cloud Condition:	Unknown	**Visibility**	10 miles
Lowest Ceiling:	Broken / 30000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	280°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.26 inches Hg	**Temperature/Dew Point:**	9°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(DSM)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	Class C

Airport Information

Airport:	Des Moines International DSM	**Runway Surface Type:**	Asphalt
Airport Elevation:	957 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	31R	**IFR Approach:**	None
Runway Length/Width:	9001 ft / 150 ft	**VFR Approach/Landing:**	Full stop;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	1 Fatal	**Latitude, Longitude:**	41.529766,-93.660598(est)

Administrative Information

Investigator In Charge (IIC):	Bowling, David
Additional Participating Persons:	Ray S Weiland; FAA; Des Moines, IA Keith E Miller; FAA; Des Moines, IA
Original Publish Date:	May 21, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=50591